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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EXPEC-SPECIFIC PROTEINS, GENES ENCODING THEM AND USES THEREOF

(57) Abstract: The invention relates to isolated antigenic polypeptides obtainable by a process comprising the steps of: 1- selecting on the basis of sequence analysis those of the polypeptides which are either located in the outer membrane or secreted by the bacteria, 2- identifying the genes coding for said polypeptides which are conserved in B2/D clinical isolates, 3- purifying the polypeptides identified in step 1, which are found in step 2 to be conserved in B2/D isolates, 4- testing the polypeptides for immunogenicity using animals models. Application for making vaccines compositions and immunotherapies

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INTERNATIONAL SEARCH REPORT

International Application No
P03/02925

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/31 C12N15/63 C07K14/245 C07K16/12 A61K39/108
G01N33/53

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 66572 A (INST NAT SANTE RECH MED ;NASSIF XAVIER (FR); TINSLEY COLIN (FR); B) 13 September 2001 (2001-09-13) SEQ ID NOs:390 and 391 page 3, line 20 - page 4, line 17 page 29, line 23 - line 31 -----	1-6, 9-13,15, 16
A	JOHNSON JAMES R ET AL: "Phylogenetic and pathotypic similarities between Escherichia coli isolates from urinary tract infections in dogs and extraintestinal infections in humans." JOURNAL OF INFECTIOUS DISEASES, vol. 183, no. 6, 2001, pages 897-906, XP002211433 ISSN: 0022-1899 abstract ----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

11 August 2003

Date of mailing of the international search report

05. 12. 2003

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP 03/02925

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MUEHLDORFER I ET AL: "Characterization of Escherichia coli strains isolated from environmental water habitats and from stool samples of healthy volunteers." RESEARCH IN MICROBIOLOGY, vol. 147, no. 8, 1996, pages 625-635, XP002211434 ISSN: 0923-2508 table I page 630, paragraph 2 -----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/02925

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 14
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-6, 9-13, 15 and 16 partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

As far as an "in vivo" method is concerned, claim 9 is directed to a method of treatment of the human/animal body and the search has been carried out and based on the alleged effects of the compound/composition.

As far as an "in vivo" method is concerned, claim 15 is directed to a diagnostic method practised on the human/animal body and the search has been carried out and based on the alleged effects of the compound/composition.

Continuation of Box I.2

Claims Nos.: 14

Claim 14 refers to "monoclonal antibodies against epitopes of polypeptide", but it does not say which polypeptide is meant. In consequence, the scope of said claim is ambiguous and vague and its subject-matter is not sufficiently disclosed and supported (Art. 83 and 84 EPC). Therefore, no search has been carried out on said claim.

The phrase "polypeptide such as used according to claim 9" comprised in Claim 13 lacks any sense. Nevertheless, the ISA has assumed that it is an error and that it refers to the polypeptides referred to in Claim 9 or, in other words, a polypeptide selected from the group comprising SEQ ID NOs:1-66 (except SEQ ID NO:8) and 133-145.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: Claims (1-6, 9-13, 15 and 16) - partially

Isolated antigenic polypeptide SEQ ID NO:14; the polynucleotide encoding it (SEQ ID NO:80); vector comprising said polynucleotide and host cell transformed with it; antibodies against said polypeptide; vaccines comprising the polypeptide; methods of diagnosis/treatment derived of the use of any of the molecules previously mentioned.

Inventions 2-32: Claims (1-6, 9-13, 15 and 16) - partially

Idem as invention 1, but restricted to each one of the polypeptides of SEQ ID NOs: 15, 17, 21-23, 28-30, 32, 36, 38, 39, 41-44, 46, 49, 50, 52-55, 58, 60, 63 and 133-138 and their corresponding genes (SEQ ID NOs:81, 83, 87-89, 94-96, 98, 102, 104, 105, 107-110, 112, 115, 116, 118, 119 and 126).

Invention 33: Claims (4-6) - partially

Isolated polynucleotide SEQ ID NO:127, vector comprising it and host cell transformed therewith.

Inventions 34-41: Claims (9-13, 15 and 16) - partially

Idem as invention 33, but restricted to each one of the polynucleotides SEQ ID NOs: 130, 132 and 146-151.

Invention 42: Claims (9-13, 15 and 16) - partially

Use of the polypeptide SEQ ID NO:1 as antigen; vaccines; antibodies against said polypeptide; methods of diagnosis/treatment derived of the use thereof.

Inventions 43-86: Claims (9-13, 15 and 16) - partially

Idem as invention 42, but restricted to each one of the polypeptides SEQ ID NOs: 2-7, 9-13, 16, 18-20, 24-27, 31, 33-35, 37, 40, 45, 47, 48, 51, 56, 57, 59, 61, 62, 64-66, 139-145.

Invention 87: Claims (7 and 8) - completely

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Process for isolating and identifying polypeptides useful as vaccines comprising the steps of: selecting on the basis of sequence analysis those of the polypeptides which are either located in the outer membrane or secreted by the bacteria; identifying the genes coding for said polypeptides which are conserved in B2/D clinical isolates; purifying the polypeptides identified in step 1, which are found in step 2 to be conserved in B2/D isolates; and testing the polypeptides for immunogenicity using animal models.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/02925

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0166572	A	13-09-2001	FR 2806096 A1	14-09-2001
			CA 2402602 A1	13-09-2001
			WO 0166572 A2	13-09-2001
			EP 1328641 A2	23-07-2003
			US 2003148324 A1	07-08-2003

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